We claim

1. A communication apparatus in an automatic dispenser for communicating data with a communication device, the apparatus comprising:

an emitter; and

logic interfaced with the emitter, the logic configured to furnish a detection signal and a communication signal to the emitter.

2. The apparatus of claim 1 wherein the emitter is an IR emitter.

3. The apparatus of claim 2 wherein the detection signal is a sequence of one or more pulses.

4. The apparatus of claim 3 wherein detection signal pulses have a repetition rate of between 2 and 10 Hertz.

5. The apparatus of claim 2 wherein the communication signal is a sequence of pulses representing data.

6. The apparatus of claim 5 wherein the data rates for the communication signal is approximately 9600 bits per second.

7. The apparatus of claim 1 wherein the coupling between the signal processor and the emitter comprises a digital-to-analog converter and an infrared driver.

8. The apparatus of claim 2 further comprising a receiver interfaced with the logic, the receiver configured to receive a reflection signal and a downstream communication signal, wherein the reflection signal is emitted from the emitter.

9. The apparatus of claim 2 further comprising a plurality of IR detectors, one of the IR detectors having a hole, wherein another of the IR detectors is aligned with the hole such that an IR signal may pass through the hole and be received by the other IR detector.

10. The apparatus of claim 8 wherein the receiver comprises a detection photo detector configured for receiving the reflection signal and a communication photo detector configured for receiving the downstream communication signal.

11. The apparatus of claim 10 wherein the photo detectors are configured in a back-to-back arrangement.

12. The apparatus of claim 8 wherein the receiver is comprised of a single photo detector wherein the single photo detector is configured to provide the reflection signal to a filter and the downstream communication signal to a decoder.

13. An apparatus for automatic control of fluid flow when an object is in proximity with the apparatus and for communicating with a communication device, the apparatus comprising:

a transmitter for transmitting a detection signal and a communication signal;

a receiver for receiving a reflected detection signal; and

logic configured to control fluid flow based upon the reflected detection signal.

14. The apparatus of claim 13 wherein each of the signals is an infrared signal.

15. The apparatus of claim 13 wherein the detection signal is a sequence of pulses.

16. The apparatus of claim 13 wherein the logic is configured to include, in said communication signal, information indicative of an operational state of the apparatus.

17. The apparatus of claim 13 wherein the transmitter comprises a single emitter.

18. The apparatus of claim 17 wherein the logic is configured to exclude simultaneous transmission of the detection signal and the communication signal.

19. The apparatus of claim 13, wherein the receiver comprises an infrared detector having a hole, wherein the apparatus further comprises another infrared detector such that an infrared signal may pass through the hole and be received by the other infrared detector.

20. An automatic dispensing apparatus for controlling fluid flow when an object is in proximity with the apparatus and for transmitting information to a communication device, the apparatus comprising:

logic configured to generate a detection signal and a communication signal;

a driver circuit configured to drive said signals;

an emitter coupled to the driver circuit for wirelessly emitting said signals; and

a receiver for receiving reflections of the detection signal where the reflections provide the basis for controlling the fluid flow.

21. A method of object detection and communication from an electronically operated dispensing device, the method comprising the steps of:

transmitting a detection signal;

detecting a reflection of the detection signal;

actuating a valve in response to the detecting step; and

transmitting a communication signal to a communication device.

22. The method of claim 21 wherein the detection signal is an infrared signal.

23. The method of claim 21 wherein the detecting step comprises the steps of:

receiving the reflection of the detection signal at a photo detector;

coupling a photo detector signal to a signal processor; and

comparing, in the signal processor, the photo detector signal to a threshold value.

24. The method of claim 21 wherein the detection signal is one or more pulses.

25. The method of claim 21 wherein the detection signal is transmitted from an infrared emitter and the communication signal is transmitted from the infrared emitter.

26. The method of claim 21 wherein logic is configured to generate the detection signal and the communication signal.

27. The method of claim 26 wherein the detection signal and the communication signal are mutually exclusive in time.

28. The method of claim 21 wherein the detecting step is performed by on of a plurality of infrared detectors, the one infrared detector having a hole, wherein the method further comprises the steps of:

transmitting an infrared signal through the hole; and

detecting the infrared signal via another of the plurality of infrared detectors.